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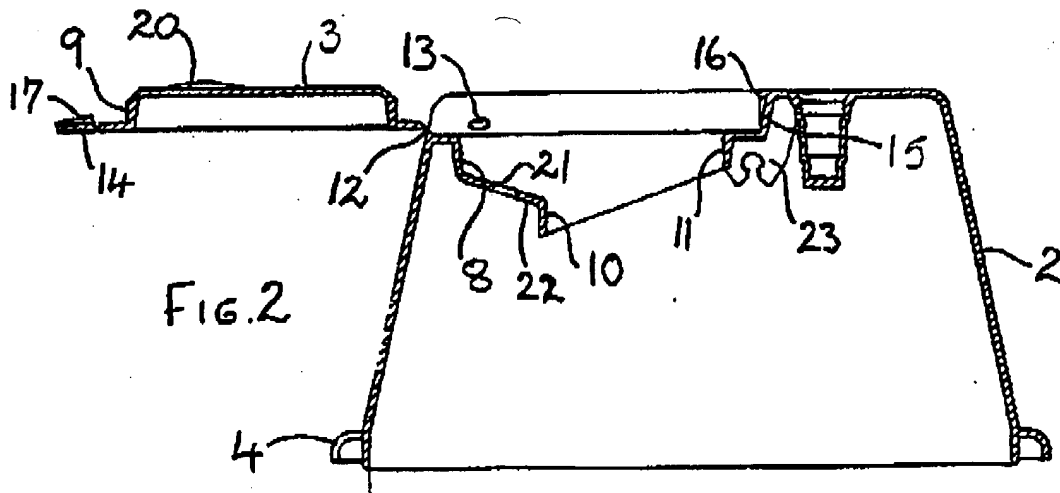
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(54) **Container closure**

(57) A recessed part 8 of a top portion 2 of a container has a ridge 11 which engages with a part 9 of a lid 3 to create a secure seal against the escape of liquids. The lid 3 is hinged to the top portion 2 by an integrally moulded live hinge 12 so that it can be folded over to introduce the lid part 9 into the recessed part 8. During closing, part of the lid 3 will move passed a bulge 13 protruding from the wall of the top portion 2 which will hold the lid temporarily in a generally closed condition. A tab 14 at the end of the lid 3 can then be grasped to pull the lid open again to snap past the bulge 13. However when it is desired to seal the container into a closed condition the lid 3 is pushed down further so that the tab 14 is turned upwardly by engagement with a side wall 15 of the top portion 2 until, ultimately, the tab 14 snaps beneath a projecting ledge 16. Once the tab 14 has snapped into position below the ledge 16 it cannot be grasped and the rest of the lid is fully received into the recessed part 8 to seal off the container.



**FIG. 2**

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**Description**

This invention is concerned with the need to ensure a secure closing of the lid to a container which is intended to hold dangerous materials such as medical refuse, syringe needles etc. Such containers are usually disposed of by incineration and thus a very secure closure is needed for when the container is being transported. Nevertheless, whilst it is in use, there is the need to open and close the lid between filling operations.

According to the present invention there is provided a container having a lid hinged at one side to the container and which can be closed over an opening into the container to seal the opening, the lid being movable from an open condition to a fully closed condition and into an intermediate condition wherein the lid is closed but not sealed with the opening, a gripping portion being provided, on the lid, which can be gripped to disengage the lid from the intermediate condition and lift it into the open condition, and locking means in the form of a retaining portion for receiving and hiding away the gripping portion so as to hold the lid securely in the fully closed condition.

The gripping portion is ideally a tab upstanding from the other side of the lid. This tab can engage with an upstanding wall of the container when the lid is in the closed condition. In this arrangement the outer free edge of tab can locate below a projection near the top of the upstanding wall of the container when the lid is in the closed condition, and which thus forms the retaining portion to ensure that the tab cannot any longer be gripped to try and pull up the lid. This security feature is best formed as a ledge on the upstanding wall of the container, thus providing that the outer free edge of the tab locates under the ledge in a non-return manner when the lid is moved to the closed condition. By this means the user can tell at a glance whether or not the container is fully closed. If not the tab will still be projecting, whereas if the container lid is fully closed the tab can be seen to be fully hidden away and incapable of being gripped.

Ideally the lid is held in the intermediate condition by interengagement with a temporary closure formation on the container body. In one arrangement this formation comprises a bulge on the container body to locate over an end portion of the lid when in the intermediate condition. Another possibility is a recess in the container body providing a temporary location for a projection on the lid. This type of arrangement has the advantage that the container can be closed in a temporary manner between filling operations and is only sealed securely when the further items are to be inserted and the container is to be transported to another site for destruction.

Preferably the lid will have a depending skirt portion which locates in sealing engagement into an inwardly directed wall leading from the opening in the container when the lid is at least in the closed condition. Rib and groove formations on the skirt portion and the inwardly directed wall can be made to interengage in the closed condition to provide a tight seal.

In a compactly designed construction the hinge is integrally moulded as a live hinge with the lid and at least that portion of the container with which the lid engages.

Advantageously the outer face of the lid will be provided with pressure point indicators at positions where the lid is best pressed down to engage the lid in the closed condition.

The lid and the corresponding opening may be of any convenient shape but an oval shape has been found to be preferable in most instances as it gives a good interengaging fit.

The invention may be performed in various ways and a preferred embodiment will now be described, by way of example, with reference to the accompanying drawings, in which:-

Figure 1 is a plan view of top and base portions of a container of this invention;

Figure 2 is a cross-section through the top portion and lid of the container as shown in Figure 1;

Figure 3 shows some details of interengaging parts of the top portion and lid shown in Figure 2;

Figures 4A to 4D show in greater detail the sequence of interengagement of the top portion and lid; and

Figures 5 and 6 are top views of an alternative form of container top portion of the invention with a lid in the open and closed conditions respectively.

The container shown in Figure 1 comprises an open base portion 1 and a top portion 2 provided with a lid 3. A flange 4 around the rim of the top portion 2 will locate in a sealing manner around a ridge on the base portion 5 when the two parts are brought into engagement by folding about a hinge line 6 of a doubly-formed handle part 7. The top portion has an oval recessed part 8 into which a similarly shaped portion 9 of the lid 3 will fit. An entry chute 10 in the top portion provides an opening for access in introducing items into a container.

As can be seen more clearly from Figures 2 and 3 the recessed part 8 has a ridge 11 which engages with part 9 of the lid 3 to create a secure seal against the escape of liquids. The lid 3 is hinged to the top portion 2 by an integrally moulded live hinge 12 so that it can be folded over to introduce the lid part 9 into the recessed part 8. At a particular point in the closure movement an end of the lid will move passed a bulge 13 protruding from the wall of the top portion 2 which will hold the lid temporarily in a generally closed condition. A tab 14 at the end of the lid 3 can then be grasped to pull the lid open again to snap past the bulge 13. However when it is desired to seal the container into a closed condition the lid 3 is pushed down further so that the tab 14 is turned upwardly by engagement with a side wall 15 of the top por-

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tion 2 until, ultimately, the tab 14 snaps beneath a projecting ledge 16. Side shields 17 are provided on the tab to assist in the location movement of the tab down the wall 15. Similar shields 18 are formed from the wall 15. Once the tab 14 has snapped into position below the ledge 16 it cannot be grasped. By this time the rest of the lid is fully received into the recessed part 8 to seal off the container and there is nothing which can be gripped to attempt to pull the lid open again. The closure state of the lid, depending upon whether the tab is projecting or hidden below the ledge 16, can readily be seen, thus removing the need for any additional steps to be taken to be certain of secure closure of the lid. This location process can be seen clearly from Figures 4A to 4D which also illustrate a live hinge which connects the tab 14 in a normal straight line condition to the rim 9A of the lid portion 9, so that it biases the tab 14 into the recess below the ledge 16, as in Figure 4D.

The arrangement shown in Figures 4 and 5 of the drawings is for a container of generally square cross-section (rather than the oblong container shown in Figure 1). Generally the design features are the same and thus the temporary location bulge 13 is provided together with the lifting tab 14. In this instance the ledge 16 is replaced by a recess 19 in the wall 15. When the lid is pushed fully home the tab 14 snaps away into the recess 19, as shown in Figure 5. In both embodiments shown in the drawings the lid incorporates pressure indication points 20 which show where the lid should ideally be pressed to move it into the fully closed position wherein the tab 14 snaps into the closed condition and the part 9 of the lid moves into sealing engagement with the recessed part 8 of the top portion 2 of the container.

Other general features are provided in the container shown in the drawings. Thus there is a keyhole-shaped hole 21, in a wall 22 leading down to the chute 10, for the receipt of needles of varying sizes. Also locating members 23 are provided for holding a pivotal flap (not shown which is weight biased into a position closing off the inner end of the chute 10.

#### Claims

1. A container (2) having a lid (3) hinged at one side to the container and which can be closed over an opening (8) into the container to seal the opening, the lid being movable from an open condition to a fully closed condition and into an intermediate condition wherein the lid is closed but not sealed with the opening, a gripping portion (14) being provided, on the lid, which can be gripped to disengage the lid from the intermediate condition and lift it into the open condition, and locking means in the form of a retaining portion (16) for receiving and hiding away the gripping portion so as to hold the lid securely in the fully closed condition.

2. A container according to Claim 1, wherein the gripping portion is a tab (14) upstanding from the other side of the lid(3).

3. A container according to Claim 1 or Claim 2, wherein the tab engages with an upstanding wall (15) of the container when the lid is in the closed condition.

4. A container according to Claim 3, wherein the outer free edge of the tab locates below a projection (16) near the top of the upstanding wall (15) of the container when the lid is in the closed condition, and preferably the projection is formed as a ledge on the upstanding wall of the container, thus providing that the outer free edge of the tab locates under the ledge in a non-return manner when the lid is moved to the closed condition.

5. A container according to any one of Claims 1 to 4, wherein the lid is held in the intermediate condition by interengagement with a temporary closure formation (13) on the container body.

6. A container according to Claim 5, wherein the closure formation comprises a bulge (13) on the container body to locate over an end portion of the lid when in the intermediate condition, or comprises a recess in the container body to provide a temporary location for a projection on the lid.

7. A container according to any of Claims 1 to 6, wherein the lid has a depending skirt portion (9) which locates in sealing engagement into an inwardly directed wall (8) leading from the opening in the container when the lid is at least in the closed condition.

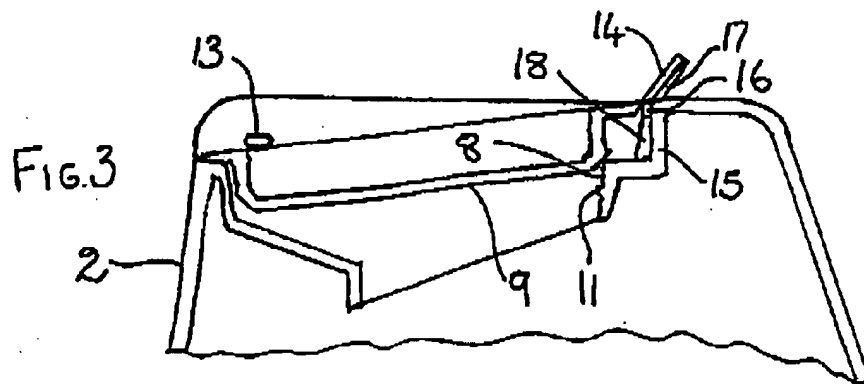
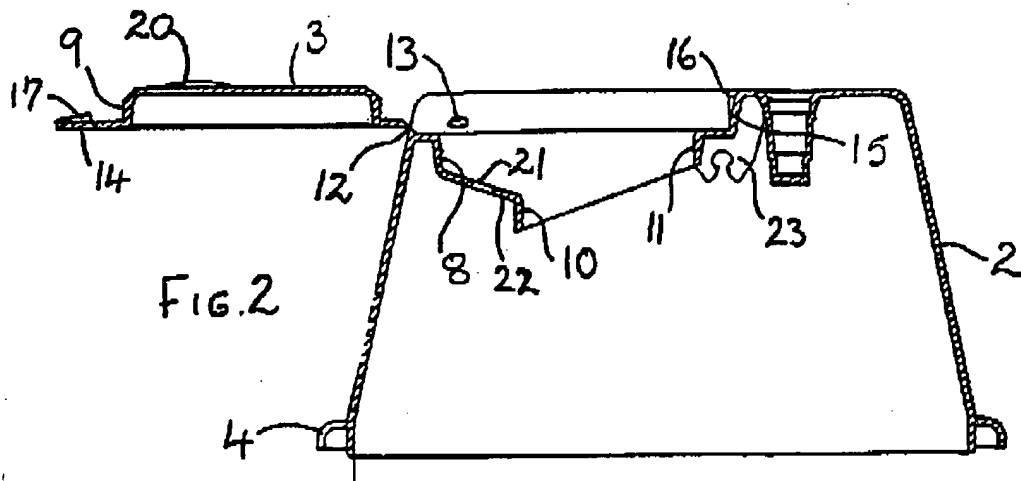
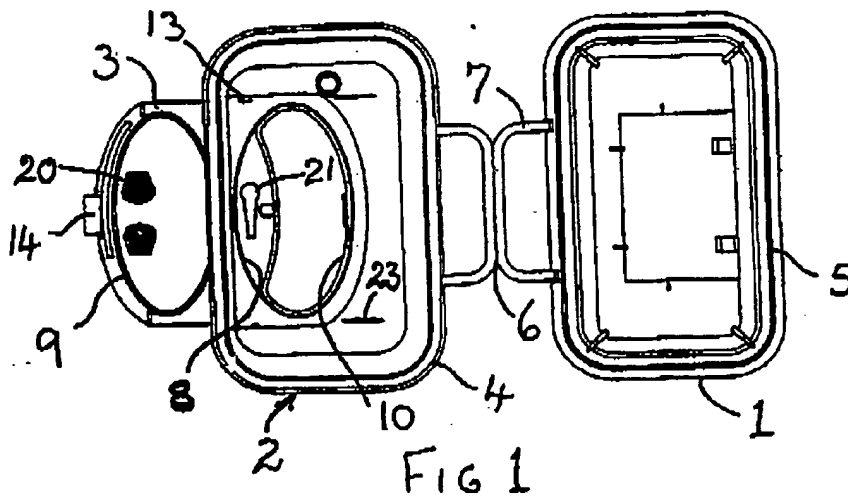
8. A container according to any of Claims 1 to 7, wherein the hinge is integrally moulded as a live hinge (12) with the lid and at least that portion of the container with which the lid engages.

9. A container according to any of Claims 1 to 8, wherein the outer face of the lid is provided with pressure point indicators (20) at positions where the lid is best pressed down to engage the lid in the closed condition.

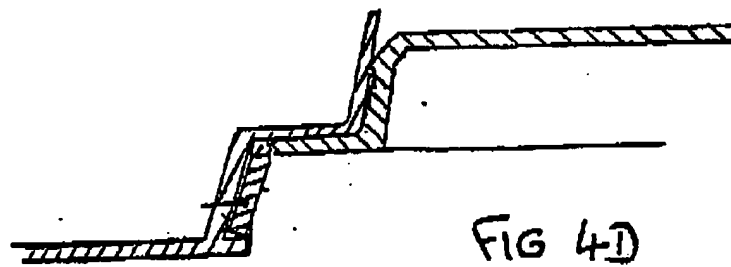
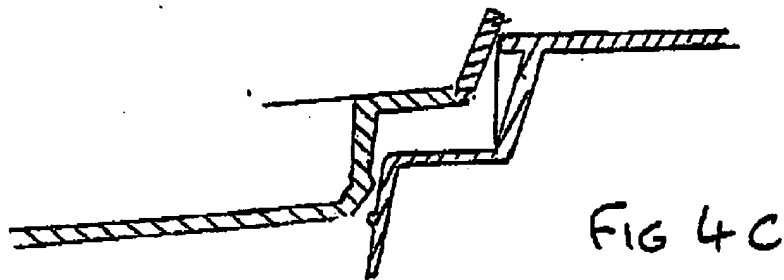
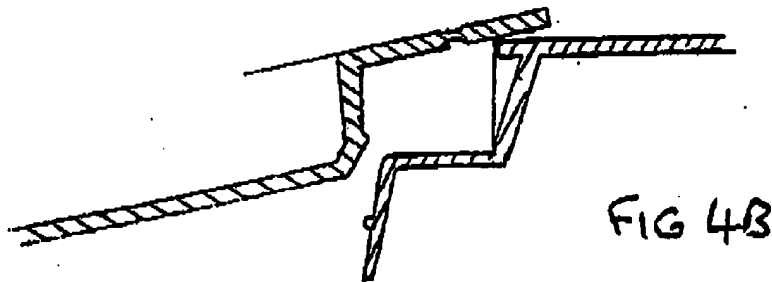
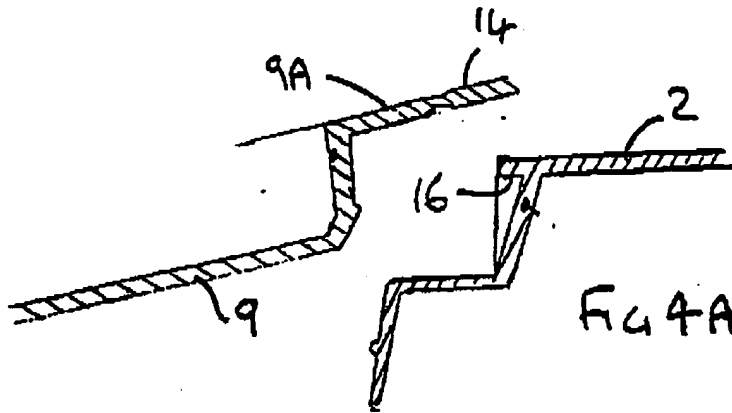
10. A container according to any of Claims 1 to 9, wherein the lid and opening are of oval shape.

11. Any novel combination of features substantially as described herein and/or as illustrated in the accompanying drawings.

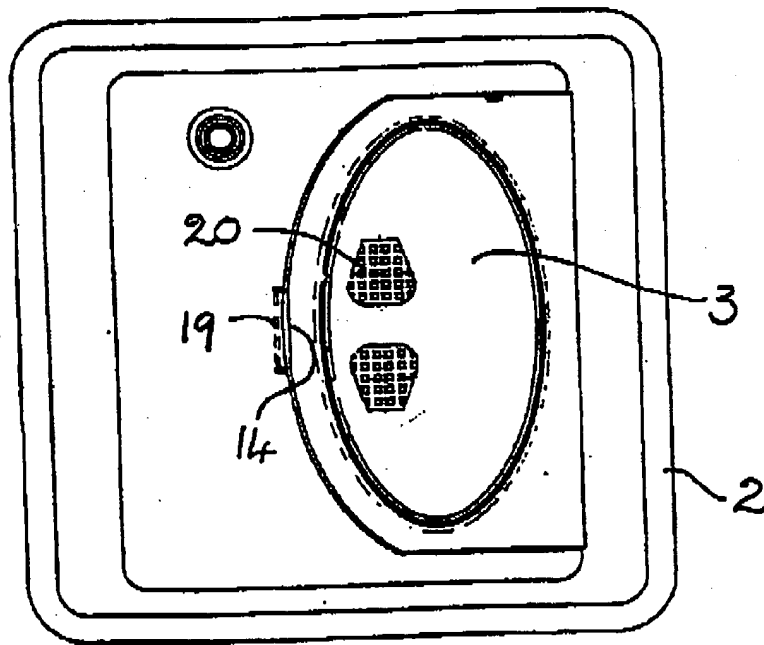
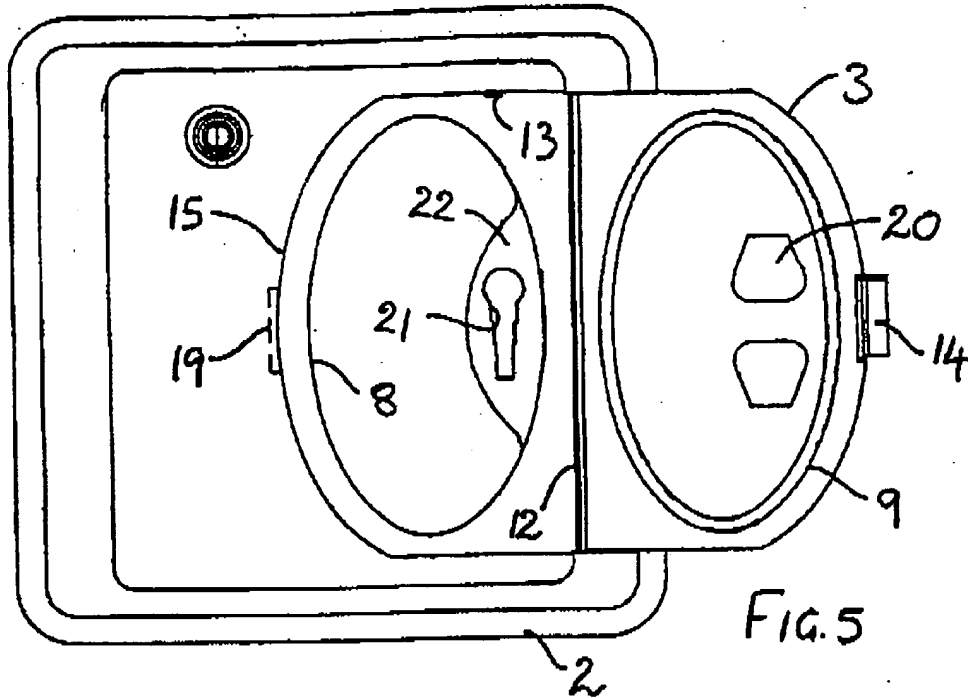
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## EUROPEAN SEARCH REPORT

Application Number  
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US-A-3 907 103 (SHAW) * the whole document *	1-3, 5, 6, 8	B65D43/16 B65D47/08 B65D55/02 B65F1/16
A	US-A-4 874 103 (QUISENBERRY)		
A	GB-A-1 600 917 (THE USON PLAST CY)		
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B65D B65F
The present search report has been drawn up for all claims:			
Place of search THE HAGUE		Date of completion of the search 20 November 1995	Examiner Martens, L
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure F : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons A : member of the same patent family, corresponding document			